IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS Alexandria, Virginia 22313-1450	Date of Mailing October 1, 2004
	Express Mail Label No. ***EL374764043US***
BOX PCT	Applicant's or Agent's File Reference 0074-

IDENTIFICATION OF THE INTERNATIONAL APPLICATION	
Int'l Appln. No. PCT/NZ02/00055	Int'l. Filing Date 03 April 2002
Applicant (name) **JOHN ABRAHAMSON**	
TRANSMITTAL OF LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)	

Attention: PCT International Division

We are enclosing the following for the above-identified international application:

1) Transmittal Letter to the United States Designated/Elected Office (DO/EO/US) Concerning a Filing Under 35 U.S.C. 371 (**FIRST** submission): Form PTO-1390 (2 pages);

2) Copy of International Publication No. WO 03/082733 (publication of International Application No. PCT/NZ02/00055); and

3) Check in the amount of $555.00: (small entity): basic national fee.

The invention is further described with reference to the accompanying Figures by way of example wherein:

Figure 1 schematically illustrates one form of reactor for the continuous or semi-continuous production of nanotubes according to the invention,

Figure 2 is a close up schematic view of the electrodes and the substrate path between the electrodes of the reactor of Figure 1,

Figure 3 is a photo micrograph of the woven carbon fibre tape used as the substrate in the work described in the subsequent example,

Figure 4 is a photomicrograph showing fibres of the tape covered with nanotubes produced in the work described in the subsequent example, and

Figure 5 is a view with greater enlargement of the nanotubes grown on the carbon tape.

DETAILED DESCRIPTION

In Figure 1, reference numeral 1 indicates a reactor chamber in which the discharge arc is created, which may have walls formed of brass or stainless steel or similar. Electrodes 2 and 3 project into the reactor chamber 1 and are typically mounted by electrode-feeding mechanisms as are known in the art, so that the position of electrode 1, which maybe the anode, and electrode 2, which may be the cathode (the positions of the anode and cathode may be reversed), may be adjusted to create the arc, and in operation to maintain or if required adjust the arc. Typically the reactor will have one or more viewing ports in the side wall of the reactor enabling an operator or control sensor to monitor the arc and electrode positions. The reactor chamber 1 preferably includes a surrounding water jacket 4 through which water is circulated to cool the walls of the reactor chamber during operation, or other suitable cooling system. In the reactor shown in Figure 1 water under pressure is admitted through inlet 5 to the water jacket

22. Carbon nanotubes formed by the method of any one of claims 1 to 21.

23. A method according to any one of claims wherein a power supply which supplies the arc current has a rms voltage ripple of less than 1 volt and current ripple of less than 0.5 Amps.